FAIR DATA MANAGEMENT OF THE nPOD NANOTOMY DATASETS

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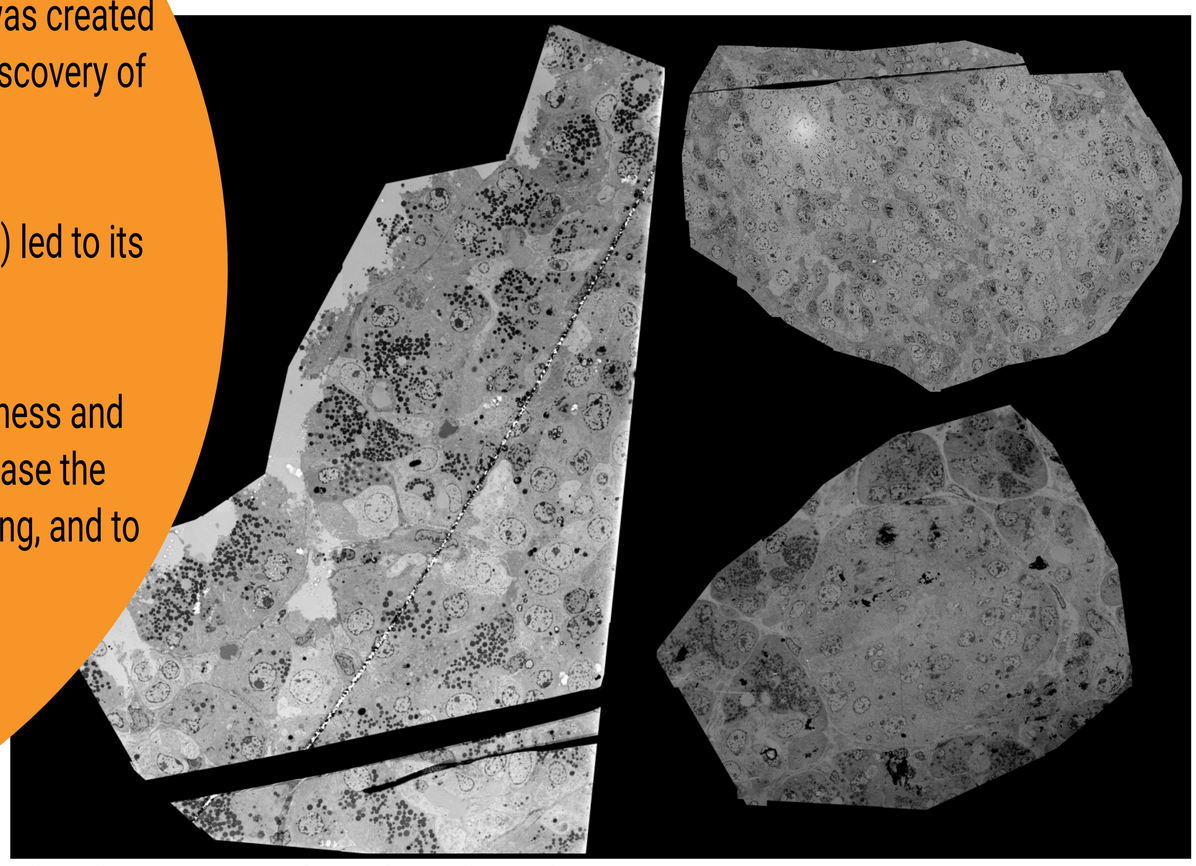
ABSTRACT

In 2020, an open-access dataset that contains large-scale electron microscopy (aka 'nanotomy') images of nPOD pancreas tissue was created and made publicly available. Analysis of the dataset led to the discovery of novel anomalies in type 1 diabetes samples [2].

The open access status of the dataset (hosted on nanotomy.org) led to its reuse in several studies.

Due to the large size of the images in the dataset, and the richness and diversity of the metadata, further efforts were needed to increase the dataset's access and reusability, especially for automated learning, and to make it compatible with FAIR data principles.

FAIR DATA: findable - accessible - interoperable - reusable

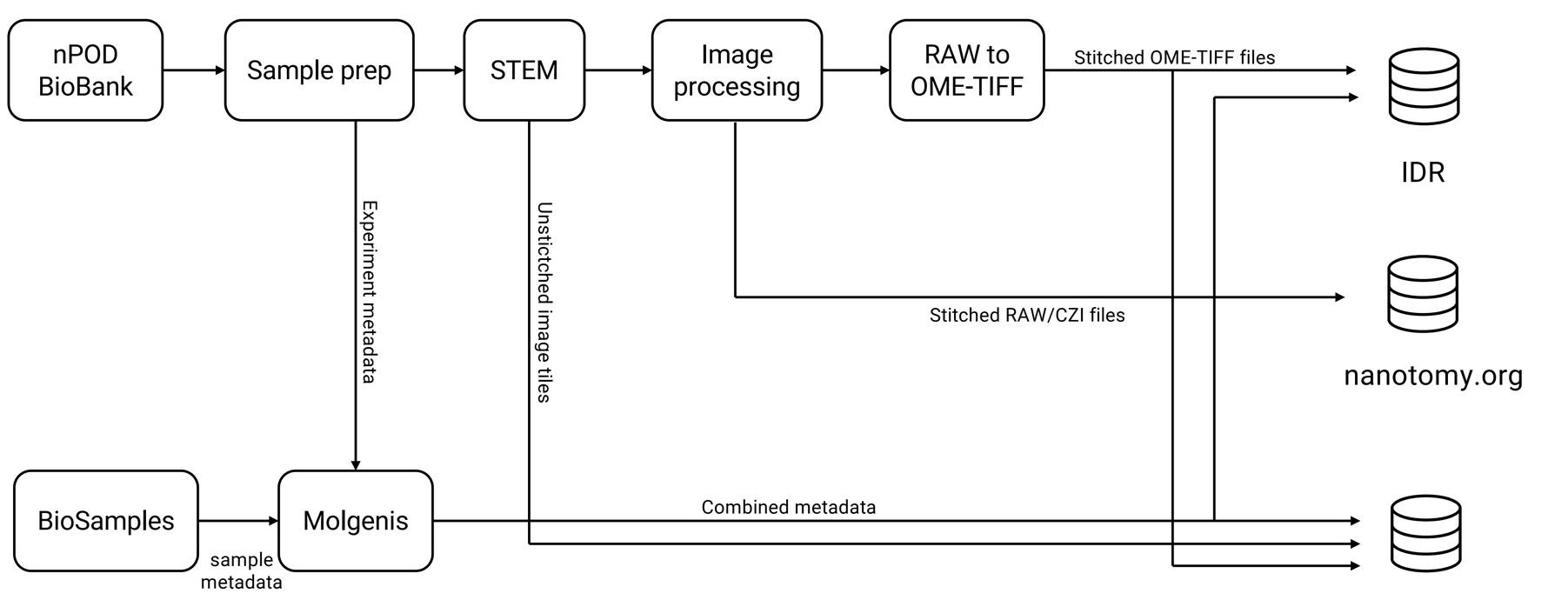


The dataset was shared on the public repositories Image Data Resource and BioImage Archive, making it available to a wider group of researchers worldwide. Three samples images (out of 64) are shown above.

A Python-based software application was created for converting the image data from proprietary file formats of microscope vendors to a standardized microscopy file format (OME-TIFF).

Rich metadata (experimental, technical, and patient) were linked to the dataset using a MOLGENIS data model for microscopy.

Data sets directly refer to the newly created metadata by nPOD on NCBI.



scan the barcode to access the complete nPOD nanotomy datasets
nanotomy.org

NL-BIOIMAGING NEMI nPOD Network for Pancreatic Organ Donors with Diabetes